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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,210	10/31/2003	Jemmy Sutanto Bintoro	GTRC132	2791
6980	7590	12/28/2007		
TROUTMAN SANDERS LLP 600 PEACHTREE STREET, NE ATLANTA, GA 30308			EXAMINER ROJAS, BERNARD	
			ART UNIT 2832	PAPER NUMBER
			MAIL DATE 12/28/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/699,210

Applicant(s)

BINTORO ET AL.

Examiner

Bernard Rojas

Art Unit

2832

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 10/04/2007 have been fully considered but they are not persuasive.

First, the Applicant states that Albarada et al fails to teach placing a microvalve in an integrated circuit, and that Vaitkus et al. concerns an inapposite field of an electrical microswitch wherein the Applicant's claimed device is in the field of a microvalve locatable in a fluid flow path.

In response to applicant's argument that Vaitkus et al. is nonanalogous art and fails to remedy the deficiency of Albarada et al., it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Albarada et al. is discloses a microvalve (electrical device) locatable in a flow path while Vaitkus et al. is used to show that electrical devices can be on the same substrate as an integrated circuit as acknowledged by Applicant [remarks 03/01/2007, page 6 last paragraph]. The combination of the two references yields an actuator locatable in a flow path that is located on the same substrate as an integrated circuit.

Second, the Applicant states Albarada et al. fails to teach an actuator locatable in a fluid flow path having a membrane capable of maintaining at least three positions.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the membrane is capable of maintaining at least three positions) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Claims 1, 12 and 21, merely states that "the membrane is capable of moving through a first position, a second position and an intermediate position". This does not require the membrane to be stable in all three positions, but only to pass through them. As Albarada et al. is switch on and off, it passes through an intermediate position with allows partial fluid flow.

Third, the Applicant states Biegelsen et al. fails to teach an actuator locatable in a fluid flow path having a membrane capable of maintaining at least three positions. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the membrane is capable of maintaining at least three positions) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Claims 1, 12 and 21, merely states that "the membrane is capable of moving through a first position, a second position and an intermediate position". This does not require the membrane to be stable in all three positions, but only to pass through them. As Biegelsen et al. is switch on and off, it passes through an intermediate position with allows partial fluid flow

Fourth, Applicant states that the Prior Art of record fails to teach that the microvalve is CMOS compatible.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a specific structure or claim language to define the microvalve as being CMOS compatible) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Albarda et al. [US 5,029,805] in view of Vaitkus et al. [US 2006/0044088].

Albarda et al. disclose a valve arrangement [figure 2] comprising: a single substrate [1] upon which is fabricated a membrane [3] and a membrane activating member [11, 12] wherein the membrane is *capable of* moving between a first position, a second position and an intermediate position, in the first position, the membrane inhibiting fluid flow through the fluid flow path and a second position, the membrane enabling fluid flow through the fluid flow path, in the intermediate position, the membrane enabling partial fluid flow through the fluid flow path [as Albarada et al. is switch on and off, it passes through an intermediate position with allows partial fluid flow]; and the membrane activating mechanism being *capable of* moving the membrane between the first position, the second position, and an intermediate position [figure 2, column 5, lines 28-51]. It has been held that the recitation that the element is "capable of" performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchinson*, 69 USPQ 1338.

Albarda et al. fails to teach that there is an integrated circuit on the substrate.

Vaitkus et al. discloses that a mem switch can be integrated on the same substrate with other electrical devices [figure 12, paragraph 66].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to integrate the mem switch of Albarda et al. on the same substrate

with other electrical devices in order to reduce the size of the overall apparatus [paragraph 66]

Claims 1-7 and 10-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biegelsen et al., figure 11 [US 6,123,316] in view of Albarda et al. [US 5,029,805] and further in view of Vaitkus et al. [US 2006/0044088].

Claims 1-2, 12 and 14, Biegelsen et al., figure 11, discloses an actuator for a microvalve [figure 11] comprising: a substrate assembly [202, 214] upon which is fabricated a membrane [242] and an electromagnetic membrane activating member [216] wherein the is *capable of* moving between a first position, a second position and an intermediate position, in the first position, the membrane inhibiting fluid flow through the fluid flow path and a second position, the membrane enabling fluid flow through the fluid flow path, in the intermediate position, the membrane enabling partial fluid flow through the fluid flow path [as Biegelsen et al. is switch on and off, it passes through an intermediate position with allows partial fluid flow]; and the membrane activating mechanism being *capable of* moving the membrane between the first position, the second position, and an intermediate position positions [figure 11, column 12, line 56-column 13, line 11]. It has been held that the recitation that the element is "capable of" performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchinson*, 69 USPQ 1338.

Biegelsen et al., figure 11, disclose everything claimed except the substrate assembly being formed of a single substrate [1].

Albarda et al. discloses a microvalve formed from a single substrate.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a single substrate to form the substrate assembly of Biegelsen et al., figure 11, in order to simplify fabrication.

Biegelsen et al. in view of Albarda et al. fails to teach that there is an integrated circuit on the substrate.

Vaitkus et al. discloses that a mem switch can be integrated on the same substrate with other electrical devices [figure 12, paragraph 66].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to integrate the mem switch of Biegelsen et al., as modified, on the same substrate with other electrical devices in order to reduce the size of the overall apparatus [paragraph 66]

Claim 3, Biegelsen et al., figure 11, discloses the substrate assembly including an orifice [226].

Claims 4-7, Biegelsen et al., figure 11, discloses the use of a convex bistable membrane [figure 11, column 12, line 56-column 13, line 11].

Claims 10-11, the specific energy applied to the actuator and the time to full activation would have been obvious design considerations based on the necessary operating times and working environment.

Claim 13, the specific process used to form the substrate would have been obvious to one of ordinary skill in the art at the time the invention was made based on the specific environment of intended use.

Claims 8-9, 14-17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biegelsen et al., figure 11, as applied to claims 1 and 12 above, and further in view of Biegelsen et al., figure 12 and Roshen et al. [US 5,475,353].

Biegelsen et al., figure 11, disclose everything claimed except the membrane being located between a permanent magnet and the electromagnetic force generator.

Biegelsen et al., figure 12, discloses placing the membrane between a permalloy poled region [215, column 13, lines 12-42] and the electromagnetic actuator.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the poled region of Biegelsen et al., figure 12, in Biegelsen et al., figure 11, for the purpose of controlling response time.

Roshen et al. disclose the use of at least one permanent magnet [28] with electromagnetic microactuators [18] arranged to provide latching without induced force [abstract].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use permanent magnets for the poled magnetic region of Biegelsen et al., as modified, for the purpose of maintaining bistable operation.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard Rojas whose telephone number is (571) 272-1998. The examiner can normally be reached on M and W-F, 5:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin G. Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


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12/26/07